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ABSTRACT

During the 2001-02 academic year, a purposive, national evaluation was undertaken of "Windows on Literacy" and "Reading Expeditions," two new school-based programs produced by the School Publishing Division of the National Geographic Society (NGS). The evaluation sought to determine the efficacy of the new materials for teachers and students. Questions posed were whether student academic performance improved when they were engaged with these literacy materials; what were the most effective practices teachers used to improve student performance as the materials were used; and whether students' affective behavior changed as a result of their experiences with these materials. The sample reflected broad geographic diversity across the U.S., classes at each of Grades 1-6, and use of books in both "Windows on Literacy" and "Reading Expressions." Each participating teacher (n=24) agreed to use at least five books from the appropriate literacy series during the study, and each assisted in three data collection activities--student generated concept maps, a written teacher survey, and extended teacher interviews by telephone (during which they shed light on their practices when using the materials). Findings suggest that students' learning improved significantly with these literacy materials and that teachers thought the books impacted their students' general attitudes toward learning. Teachers also thought that the pictures and the format of the text enabled students to personally connect with the texts, thereby making them more receptive to the content. (NKA)

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Evaluation of National Geographic School Publishing Nonfiction Literacy Materials

Summary Report
September, 2002

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1.0 Introduction

During the 2001-02 academic year, a purposive, national evaluation was undertaken of ***Windows on Literacy*** and ***Reading Expeditions***, two new school-based programs produced by the School Publishing Division of The National Geographic Society (NGS). The evaluation joined the capacities of the ERIC Clearinghouse on Reading, English, and Communication Skills; the Family Learning Association; and the Indiana Center for Evaluation. The general intent of the evaluation was to determine the efficacy of the new materials for teachers and students. The present report summarizes the evaluation activities and findings associated with this project.

2.0 Evaluation Methods and Approaches

Three questions guided the collection and analysis of date in the present project:

Question 1, Does student academic performance improve when they are engaged with the literacy materials included in ***Windows on Literacy*** or ***Reading Expeditions***?

Question 2, What are the most effective practices used by teachers to improve student performance as the materials were used?

Question 3, Does students' affective behavior change as a result of their experience with the ***Windows on Literacy*** and ***Reading Expeditions*** materials?

Question two above represents an attempt to *describe* how teachers used the literacy materials in their classrooms and, to the extent possible, to identify those practices or approaches that teachers felt were most useful to them. Questions one and three, in contrast, seek possible *causal relationships* between changes in students' academic or affective performance that can be attributed to engagement with the materials.

It was hoped that an experimental approach might be applied to the study of questions one and three. However, logistical and resource restrictions made this impossible. Instead, a

pretest-posttest design was applied to changes in students' academic performance, and written and telephone surveys of teachers were used to estimate both changes in students' affective behavior and to describe the instructional approaches used by teachers. These methodologies do not allow definitive conclusions to be drawn about the impact of the literacy materials on students. They do, however, provide an indication of changes in student performance that teachers believe to have resulted from engagement with the materials.

2.1 Sample Selection

Of fundamental importance to the evaluation team was that the sample reflected: (a) broad geographic diversity across the U.S.; (b) classes at each of grades 1-6; and (c) use of books in both ***Windows on Literacy*** and ***Reading Expeditions***. Thus, in an attempt to identify potential study participants that would address these issues, evaluation team members worked with National Geographic staff in the late fall of 2001 to identify schools that had purchased the textbook series in recent months. Upon receiving contact information for these schools, evaluation staff members made initial contact with a representative of each building to identify specific teachers who were to be using the materials during spring semester, 2002.

Individual teachers were then contacted by evaluation staff members who explained the study and asked each teacher if he or she would be interested in receiving detailed information related to the required research activities. Consenting teachers received a letter from the Indiana Center for Evaluation explaining the purpose of the study and detailing the three primary research activities (described below) in which each teacher would be required to participate. After letters were distributed, research staff members made telephone contact with teachers requesting additional information and answering teachers' questions about the study. At the conclusion of this telephone conversation, research staff invited the participation of teachers. In all, 24 teachers were identified by the evaluation team and agreed to participate[1].

[1] Four teachers, who initially agreed to participate, dropped out of the study prior to returning any data.

2.2 Data Sources and Collection

Each participating teacher agreed to use at least five books from the appropriate literacy series during the period of the study. The books and the order in which they were to be used were to be established by the teacher at the outset of the study and conveyed to the evaluation team. In addition, teachers agreed to assist the evaluation team by completing or participating in three data collection activities. These were: (i) student generated concept maps; (ii) a written survey of teachers; and (iii) extended telephone interviews with teachers. Each of these is described in detail below.

2.2.1 Student Generated Concept Maps

A particularly difficult element of the present project was the identification and collection of meaningful data on student learning across multiple classrooms, books, and book series. The literacy materials themselves are suitable for a variety of instructional approaches and could be used to promote a wide range of instructional outcomes. Thus, each teacher in the study could, potentially, have used the materials in unique ways and to foster learning outcomes that were specific to the students in his or her classroom. For example, some teachers might choose to use the materials to present content, others to supplement regular class content, others to motivate students to read on their own, and others to develop specific reading or literacy skills. To the extent this was the case, it would be extremely difficult to obtain measures of student learning through typical approaches (e.g., standardized tests).

In order to allow collection of data associated with student learning that would be suitable across this range of applications (as well as across the content, levels, and specific skills addressed by individual books in the series), the evaluation team chose to use student-generated concept maps. The use of concept maps for collecting data is a technique that has been used frequently by the Indiana Center for Evaluation across a range of educational settings.[2] For the present study it was believed to be more efficacious than using other forms of assessment (e.g., multiple choice or open-ended tests) for three reasons. First, it provided a method of data collection that could be used across grades from first through sixth.

[2] See Kim K. Metcalf. *Evaluation of Project I.A.C.P. Bridge*, technical report prepared for Junior Achievement of Central Texas (2001).

Second, the nature of this approach requires students not just to demonstrate knowledge of isolated facts, but also to demonstrate an understanding of the interrelationship between ideas or facts. Third, teachers' use of concept maps has become much more prevalent in U.S. classrooms than traditional paper-and-pencil tests, thus, students would be more likely to have experience with the method of assessment to be used.

Before engaging students in each of five books that the teacher selected from the NGS series, students were asked to complete a concept map of what they knew about the topic of the book. Because it was assumed that some students would be more experienced with concept maps than others, teachers were provided with standardized instructions that they could use to help students understand how to develop their maps. After working through each book, teachers again asked students to develop a concept map of what they knew about the topic of the book.

Each pair (pre and post-reading) of student concept maps were stapled together by the teacher and returned to the evaluation team for scoring. Two teachers were unable to complete all five of the books they had selected. As a result, complete pre and post-reading data were available for only 18 of the 20 teachers. However, across the 20 classes from which one or more complete concept map pairs were obtained, 4,944 concept map pairs were available for analysis.

Each student's pair of maps (for each book) was scored by a trained member of the evaluation team for *change* in each of four factors:

- *Detail:* This factor rated the extent to which a students' post-reading concept map included greater detail about the core topic than the pretest. Ratings on this factor were from -2 (representing substantially less detail in the post-reading map) through 0 (representing no change in detail) to +2 (representing substantially more detail in the post-reading map).
- *Abstraction:* This factor rated the extent to which a student's post-reading concept map included more levels of abstraction than the pre-reading map. As with detail, this factor was rated from -2 to +2.

- *Number:* This factor was a direct measure of change in the specific number of ideas, concepts, or facts (either abstract or detailed) that were included by the student from pre-reading to post-reading.
- *Overall:* This factor represented a single rating of the scorer's perception of the extent to which each set of concept maps indicated change in the student's understanding of the topic. This factor was rated on a scale from -2 to +2.

The reliability and consistency of the scoring process was established through random, independent checks of ratings by two other evaluation team members.

2.2.2 Teacher Written Survey

The second data collection activity was completion by each teacher of a brief written survey, which is included in Appendix A. The survey was mailed to each teacher at a point in the semester when they expected to be done with all five of the books they had selected. When all student concept maps had been received from a teacher, follow-up telephone and mail contact was made to remind them to complete and return the survey. All 20 teachers completed and returned the survey.

The instrument asked teachers to provide or confirm information related to the grade or grades in which they used the books, the book series from which they selected, the titles of the five books they used for the study, the length of time during which they covered these books with their students, and the total number of books they had used.[3]

The largest portion of the survey was devoted to obtaining descriptive information about the literacy skills applied by their students. Teachers were asked to consider three distinct reading ability groups in their classes: the top 1/3, middle 1/3, and lowest 1/3. They were then asked to rate the extent to which students in each group used particular strategies when reading. These strategies reflected the literacy goals on which the NGS materials were focused (as they appeared in teacher materials), and related to strategies applied before

[3] Teachers were to use the five selected books (for the study) first. After this, they were free to use any other books from either series that they wished.

reading, during reading, and after reading. For each of 20 strategies, teachers rated each group of readers from "almost always" using the strategy to "almost never" using the strategy. Ratings were then coded from 1 (almost always) through 5 (almost never).

2.2.3 Teacher Interviews

The final data collection activity was conducted with each teacher after receipt of their written survey. Teachers were contacted via telephone and electronic mail to schedule a time convenient for conducting the interview. One member of the research team scheduled and conducted all of the interviews to ensure consistency in questioning. In all, 20 telephone interviews were completed, with interviews lasting 30 minutes on average.

The open-ended instrument, consisting of a 15-question protocol, was designed by members of the research team to provide information regarding teacher's perceptions and usage of the National Geographic textbook series. The protocol consisted of an opening paragraph, read by the interviewer, which identified the interviewer as an external evaluator who was not employed by National Geographic. The opening paragraph, in addition to describing the purpose of the interview, also informed the teachers that their response were confidential as their name would not be associated with their responses in any way.

At the start of each interview, the researcher asked demographic questions regarding the context in which the reading activities were completed (e.g. grade level taught, book series used, and the order students experienced the books). This information was used to update participant database information as appropriate. The next sections of questions focused on teachers' perceptions of students' interest and engagement with the materials, how teachers used the materials, and how the materials impacted the teacher's instruction. To conclude each interview, feedback on the utility of the materials and how they might be improved was solicited.

Specifically regarding student usage, teachers were asked the following questions:

- Did you think the texts were leveled appropriately (appropriate for the age/ability they were intended)?

- In your opinion, what did your students like most or find most engaging about the books?
- In your opinion, what disinterested or frustrated your students about the books?
- How did the textbook series impact your students' values and attitudes?

Teachers were asked the following questions about their usage of the materials:

- In what subject area did you utilize the National Geographic books?
- Prior to using the National Geographic materials, what did you hope you and your students would gain from the materials? Were you satisfied?
- Please describe the instructional/organizational strategies you used with the National Geographic materials?
- How did the materials enable you to change your instruction?
- As you were using the National Geographic materials, what pleased you most about the materials? (please describe)
- As you were using the National Geographic materials, what most disappointed you about the materials? (please describe)

And, lastly, to conclude the interview, teachers were asked to offer suggestions on how the materials might be improved:

- If National Geographic asked your opinion about how they could improve the series, what suggestions would you offer?

To document the telephone interviews, the researcher typed teachers' responses verbatim, as the interviews were conducted. To ensure the accuracy of the transcriptions, upon the completion of every question, the researcher asked the teachers to review their responses as the interviewer read what she had typed. Teachers were invited to add to or modify their responses, and their additions/modifications were read back to them. This process continued until the teachers felt the transcription accurately represented what he/she intended to say.

3.0 Data Analysis

The present section of the report documents the data analysis techniques utilized throughout the evaluation of the National Geographic materials. Specifically, this section is organized according to data source.

3.1 Data Analysis Techniques

Concept Maps and Surveys

Quantitative data from the concept maps and teacher survey were analyzed using both descriptive and inferential techniques. These included Chi-square analyses, analysis of variance, and when appropriate, follow-up pairwise comparison techniques.[4]

Interviews

The extended telephone interviews provided qualitative data. These data were analyzed using Altas Ti © visual qualitative data analysis and management software. Interview responses were grouped according to question, and then one member of the research team coded and categorized teachers' responses.

4.0 Analyses and Results

The *Analyses and Results* section of this report is organized around the three questions that guided the evaluation of the National Geographic materials. For each question, the relevant results across data sources are presented.

[4] An adaptation of the Dunn-Sidak (1977) multiple rejective technique was used for all follow-up comparisons.

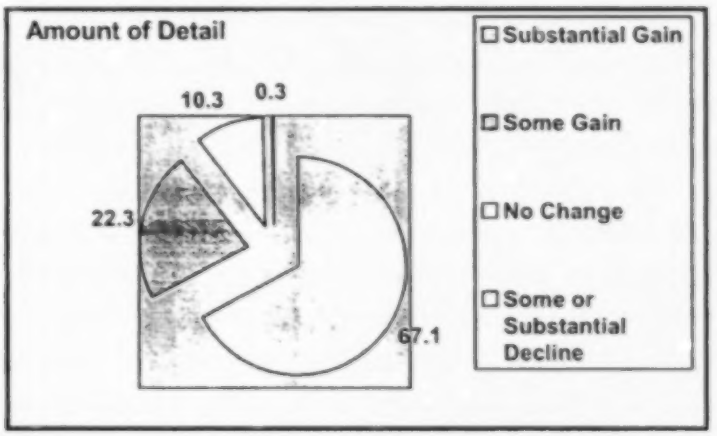
4.1 Question One

Does student academic performance improve when they are engaged with the literacy materials included in *Windows on Literacy* or *Reading Expeditions*?

Research question one was addressed primarily through the pre and post-reading concept maps completed by students in each participating classroom and supplemented with data from the telephone interviews conducted with teachers. Specifically, the concept maps provide quantitative data regarding the knowledge gained by students as a result of their experiences with the materials, while the interviews and surveys provide information related to how teachers perceived the books to have impacted students.

Across these data sources, the findings indicate that students' learning improved significantly. Figures 1-4 graphically present data on each of the four elements measured through the concept maps.

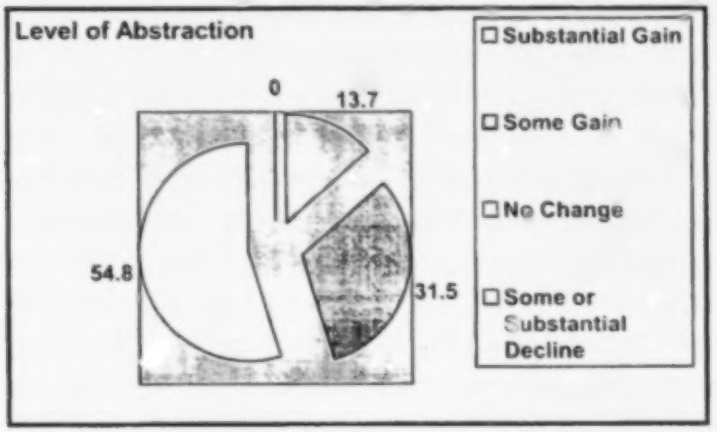
Figure 1.



As reflected in Figure 1, nearly 90% of all students demonstrated mean improvement in the amount of detail they included from pre to post-reading maps. Mean rating of improvement in amount of detail was 1.51 out of a possible 2.0. Surprisingly, only one (1) student in the

entire sample was found to have included less detail in post-reading maps, and only 4.2% exhibited no change.

Figure 2.



The level of abstraction evidenced by students was also found to be increased from pre to post-reading concept maps. While the extent of improvement in level of abstraction is not as great as that for level of detail (0.51 versus 1.51), mean abstraction scores indicated that 86.3% of students demonstrated a higher level of abstraction in post-reading maps than in pre-reading maps. While slightly fewer than 14% of students demonstrated no change in level of abstraction, it is noteworthy that no students declined in their level of abstraction.

Figure 3.

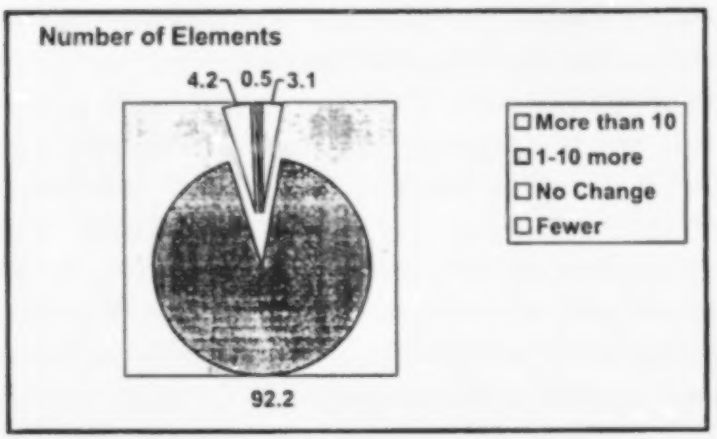
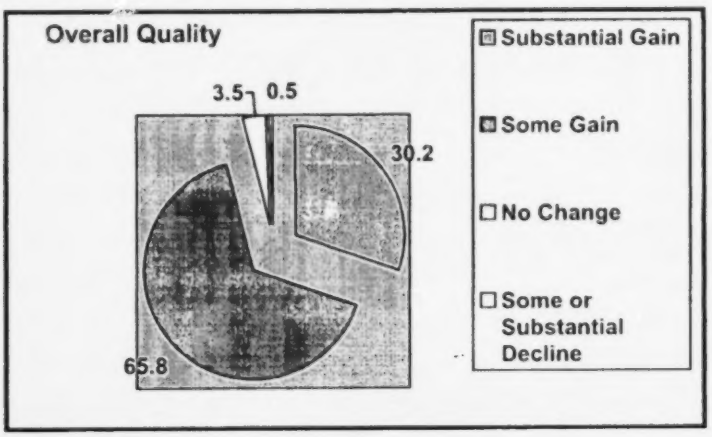


Figure 3 presents data on change from pre to post-reading in the total number of correct facts or ideas associated with the topic students included in their concept maps. Mean gain in number of items across students was 2.41. Surprisingly, 95.3% of students included a greater number of correct ideas or facts in their post-reading maps. Of the remaining students, 4.2% demonstrated no significant increase and a single student demonstrated a slight mean decline.

Figure 4.



Across Figures 1-3, it is clear that students improved significantly and consistently in each of the three specific elements that were scored by the evaluation team. Perhaps equally important, however, are the ratings of overall quality of the concept maps. This rating would consider the totality of the map, its inclusiveness, accuracy, and detail. Figure 4 presents data associated with this more holistic measure of student learning as it is reflected in students' concept maps.

Mean rating of improvement in overall quality of learning reflected in students' maps was 1.13 out of a possible 2.0. Fully 96% of students were deemed to demonstrate greater understanding of the topic in their post-reading maps. Importantly, only 3.5% of students demonstrated no change in understanding and a single student demonstrated slightly less understanding.

As is evident across the measures of student learning that were examined through the concept maps, students' demonstrated significantly greater understanding of the topics after working with the National Geographic materials. Surprisingly, this is true in the detail they were aware of, the level of abstraction with which they understood the various details, the number of correct facts or ideas that they understood, and in the accuracy with which they linked these elements. These quantitative findings are further supported by data drawn from the survey and interviews of teachers.

Specifically regarding teachers' perceptions of the impact of the National Geographic materials on their students' academic performance, teachers identified increased acquisition of content knowledge and reading skills as areas in which they recognized student improvement.

Content knowledge

One teacher talked about the content knowledge of two of her classes, she compared one class that experienced the National Geographic books with another that did not. She said,

> *What I did notice was that my students understood the material better than my other classes [that did not use the National Geographic books]...they performed much better on an end of the year test than the other kids...I think it was because they read and were exposed to the National Geographic materials where the other classes were not.*

A Title I reading teacher who used the series discussed how the books impacted her students. She explained,

> *These kids were failing social studies...I matched the books with what they were learning in social studies, and they improved on their social studies class participation [because] it gave them some background knowledge.*

Another teacher compared the information in the National Geographic materials with the information in the district adopted social studies textbook. "Often [in the National Geographic materials] there were specific examples that we had not heard about in our textbook." She explained, they offered "more realistic, accurate, and specific incidents that really brought this home for them," identifying that because of the materials, her students understood that,

> *there are people and real people who experienced all of this rather than the textbook that tends to be more dry and doesn't have all the people and personal experience. [The information] is told so realistically and so well.*

Reading skills

Several teachers emphasized the use of the National Geographic materials in teaching their students reading skills. One teacher explained that she selected the National Geographic materials because, "I wanted [my students] to get experience with non-fiction and [to get] an understanding of how to find details and facts from texts." Another teacher furthered this notion explaining, "You usually learn to read non-fiction when doing research and it is difficult…the [National Geographic] non-fiction text features are presented in such a way that they were perfect materials for kids learning to read non-fiction."

While the books teach social studies and science content, several of the teachers using the series were reading and language arts teachers. One of the reading teachers noted, "Obviously, I was not focusing on the content but was emphasizing the vocabulary and how to decode words, [but] the students obviously learned about the topic from reading the books." She further explained, "because they were interested in the books…I used them to encourage and excite kids to figure out the words."

Another teacher identified how the structure and format of the texts helped her struggling readers. They "liked the pictures and diagrams. [The pictures] really enhanced the texts [and they] helped lower readers because they rely on those cues more than higher readers do." Another teacher added, "they also found the glossary helpful, and I found it helpful too. They

used it when they didn't understand the words in context of the book," further complimenting the structure and format of the National Geographic materials.

4.2 Question Two

What are the most effective practices used by teachers to improve student performance as the materials were used?

Responses of teachers during the telephone interviews provide descriptive information related to the practices used by teachers as they were utilizing the National Geographic materials.

One of the interview questions specifically asked teachers to describe how they utilized the materials in their classrooms. This question, in addition to responses to other questions, suggested that the National Geographic materials can easily be utilized for *reading instruction* and a means of *integrating across the curriculum*. Teachers also commented on the lessons provided in the series *supporting materials*, and how they used the materials to prepare their students for *state proficiency tests*.

Reading Instruction

One teacher explained how she used the books to help teach her students about textual features and how to use them. She explained, with the books I could "point out components of non-fiction reading and I could not do that with my units." She explained, the National Geographic materials,

> *gave me something written to work with...[I] gave them the books [and] described the bold print for use of special vocabulary words, [components] in non-fiction reading [like] titles on each page, [and] underlined words.*

Another teacher explained how she used the materials to teach her students expository writing; she said "kids have trouble getting away from report like talk, [the materials serve as an] excellent example of how to write non-fiction."

Yet another teacher described how she uses the National Geographic materials in her instruction, "Well, they allowed me to work with different levels of readers.... the range of the books allows me to work with a variety of readers at their level." She continued by explaining "I could use phonics skills or comprehensions skills with the books" to help kids to improve their reading.

Curriculum integration

Several of the teachers noted that the materials and the diversity of topics enabled them to integrate across the curriculum more easily. As one teacher explained, they "enabled me to better integrate instruction with social studies [by allowing] me to go beyond the textbooks [to] go outside of the social studies textbooks." She explained, "during ELA [English/Language Arts] time, instead of reading fairy tales, I could integrate [with] social studies."

Another teacher explained, "we wish more textbooks would do what National Geographic did." The books give "me exactly what I needed as opposed to instruction that is hit or miss. [For example] maybe you have a story that has point of view, but isn't on target [for a child's ability], these books are on target for these [skills] exactly."

Supporting materials

Teachers who had the teacher resource guides commended National Geographic on the quality and quantity of the materials included. "Amazing materials that were included," one teacher declared; "The information and primary source documentation was fantastic...I would find myself so interested in learning things I didn't know that it surprised me."

As another teacher explained, my favorite part of the materials was "probably the activities they provided. They were good because I could plan lessons around them, so they took some work out of the process of creating lessons."

The fact "that [the lessons in the teacher's guide] were pretty easy once I explained them to kids" was most pleasing to one teacher. She explained "the suggested activities worked well with other activities the kids had done in school, so they understood them" with little additional instruction. While another teacher, when talking about the teacher resource materials said "I found the website accessible to find information, and I used that a lot." Several teachers mentioned using the National Geographic website to obtain additional information and/or ideas for using the books in their classrooms.

When asked about her favorite feature of the materials, another explained,

> *I liked the lay out; it is kid friendly. They are not like a chapter book, so the kids don't have to plow through them without any pictures [and] they are not like a textbook with tons of words. [With textbooks] kids see so many words and they click off. I like the thin books. The chapters are not overwhelming, and the facts on the pages were interesting. [The kids liked the identification of] websites they could go to, and we would go to them and check things out.*

State Proficiency tests

Interestingly, a few teachers in the study discussed the connection between the curriculum in National Geographic materials and their state district curriculum standards. A teacher from Ohio stated,

> *Before we saw the materials, we were just pulling things trying to reinforce the OPT [Ohio Proficiency Test] strands. When I saw how they [the National Geographic materials] matched the proficiency tests, I saw how they could master the [OPT] strands like cause and effect.*

She identified herself as sold on the materials when she recognized that "every single book in the series is aligned with OPT strands," and expressed relief at finding one source to reinforce the state test strands.

Another teacher explained,

> *I liked the format and the set up. Each page had a lot of graphs and tables, which is very good because our fourth grade state test [in Illinois] covers social studies and science. There are a lot of tables and graphs on the test, and any extra practice they can get is great.*

4.3 Question Three

Does students' affective behavior change as a result of their experience with the Windows on Literacy and Reading Expeditions materials?

Question three is addressed through responses of teachers to the interview questions. Through the interviews, teachers identified several ways in which the materials impacted their students' affective behaviors. Specifically, teachers thought the books impacted their students' general attitudes toward learning, and more specifically their students' interest in the content areas of science and social studies. Teachers also identified that they thought the pictures and the format of the text enabled the students to personally connect with the texts thereby making them more receptive to the content.

Attitudes toward learning

One teacher described that her students "realized that they learned things from the books…and it inspired them to learn more through personal exploration." She explained that her students used the books as starting points for topics that they further explored in independent study units.

Another teacher explained, the kids "they took pride in the books and they were anxious to read the next book. Often they would read ahead to see what would happen next." The books engaged the kids.

Interest in content areas of science and social studies

Several teachers mentioned the impact the books had on their students' interest in science and social studies. As one teacher identified,

> *I think the books improved their attitudes about studying social studies because [the topics in the books] were more relevant to their everyday lives. They learned things they could uses in their lives, particularly [the books] about managing money and being consumers.*

While another teacher added, the books affected student's "attitude, they made them hungrier for information. They looked up things on their own and their attitude became more positive about doing research." "The content was interesting," identified another teacher, "it intrigued even my reluctant readers."

The "Kids Make a Difference" series of books was a focus for one teacher.

> *I think the Kids series really hit home because they could relate to it. We made up budgets, examined advertising, and looked at ads in kids' magazines. They looked at the magazine and counted the number of ads in a 95 page magazine and were like 'wow we are paying a lot for 45 pages of ads.' It hit home more with them because they could relate to it. I think it may have impacted their values and some of them may go home and help their parents make better decisions like buying things that they get more for their money.*

Personal Connection

Many teachers emphasized the personal connection the students could make with the texts as a result of the format and writing style of the books, and they identified the impact the personal connections had on their learning. Related to the content of the books, one teacher explained,

> *Well, I think it reinforced a lot of what they already know and made them feel important. They were not intimidated by it; they could relate to it so it made it more user-friendly to teachers as well as student. This made it interesting to me even.*

"I think what was nice was that our textbook does not have a lot of first person narrative type writing in it," explained another teacher. The textbooks are

> *good about showing real photos of that time, but it isn't enough. The National Geographic books were nice because they had art of the time, and art trying to depict photos of real people of the time. The characters were telling feelings and stories of people of the time and contrasting that with another's feelings. This allowed us to have more 'what-if' discussions.*

She continued,

> *Nowhere in textbooks is there talking by a character. Even if [the characters in the National Geographic books] were invented, the kids believed it and it allowed us to talk about putting ourselves in that situation. It made history more real for them. The pictures were awesome, the subjects really appealed to them because they could relate them to their lives, and they were really excited to find out about new topics.*

5.0 Recommendations

During the telephone interviews, several teachers offered suggestions on ways National Geographic could improve the books and/or the series in general. Study participants offered

suggestions ranging from including more books in the series, to mapping the books to curriculums, to providing more supplemental materials, to offering services to teachers. Responses of teacher are organized within these categories and are included below.

More books

Several teachers mentioned a desire for more books in the series. One teacher explained, it

> *would have been nice to have books covering the same content written at a variety of reading levels. For example, having three books, each written at different reading levels that covered the topics in say the "Blue and Grey" book.*

While another teacher offered the idea of expanding the number of books to cover topics more thoroughly; she offered perhaps having

> *follow-up texts on the subjects that would go into the topics deeper....so like have a few books related to electricity, including one that is general and then a few others that go more deeper into the issues.*

Yet another teacher suggested adding "good science books for the older kids would be great," indicating "There are not a lot of fourth through sixth grade reading leveled books with a science focus."

Book content mapped to curriculum

While a few of the teachers (e.g. those in Illinois and Ohio) specifically identified how the books directly mapped to their state curriculum standards, some teachers from other states expressed interest in books that were more directly mapped to their curriculum.

As one teacher expressed, "Some of the books at the fourth grade level worked with the fifth grade curriculum better than the fourth grade curriculum," while the books that fit our fourth grade world history curriculum were targeted for third grade readers. Another teacher, one from New York, explained a similar situation;

> *I would like to see more books about land forms [for third graders]. We [in New York] look at the globe and break it to continents and areas, for example, mountain range, polar, rainforest, grasses.*

She suggests "linking the book topics to state curriculum at the grade level the books are targeted towards."

Supplemental materials

Suggestions for adding supplemental materials to the books were offered by many teachers. Some of the teachers making the suggestions indicated they did not have the teacher resource guides that corresponded with the texts, or that they were sharing one with several other teachers and so didn't get to use it often. As a result, some of the ideas expressed may be addressed currently within the teacher resource guides unbeknownst to them.

"Adding some questions to go with the books," was a suggestions one teacher offered. While another suggested "in student copies, have some comprehension checks along the way… [or] give some writing prompts."

Other teachers offered ideas of additional materials to include as teaching resources in addition to the books themselves. "I would like to see," explained one teacher,

> *books that followed the series or a video, [or perhaps] a regular reading book [like a novel] that was linked to what they were doing. [For example a book] isolating one inventor and talking about that alone.*

Another teacher suggested having some videos to go with the books and thought,

> *maybe they could include a little diary or journal entry book. [National Geographic could] print up a little diary or dialogue journal, maybe 10 pages, that you could order in sets of 10, so [teachers] could have these sets of pre-done booklets that match back to the books that have writing prompts in them.*

Services to teachers

Three teachers specifically identified some ways they thought National Geographic could provide more services to the teachers who buy the books. One teacher explained, when I received the books,

> *I didn't know for sure which ones were science or social studies titles. I had a hard time knowing where to put what book and how to organize them, and [to know] if I'd received everything I ordered.*

She suggested including an "instruction sheet…when you first get your crate…telling you which titles are social studies and which are science [and offering] a list of the levels of the books." She explained having this information would enable her to know how to arrange her materials better.

Two other teachers suggested allowing "teachers to share the materials they have used with the various books," one of whom offered, perhaps having a chat site or "space on the web-site for teachers to offer ideas for how they have used the materials in their classroom and to provide activity or extension ideas."

6.0 Summary and Conclusions

The present study was intended to address three questions associated with the effectiveness and utility of *Windows on Literacy* and *Reading Expeditions*, recently released non-fiction series for children. Drawing from a sample of teachers in grades 1-6 throughout the country, data were collected on the impact of the materials on students' learning and affect, the instructional approaches used by teachers as they worked with their children through the materials, and teachers' perceptions of the materials themselves.

Across the multiple data collection and analysis techniques used in the project, the findings consistently and clearly indicate that students whose teacher used the National Geographic materials demonstrated much greater and more complete understanding of the topics presented in the materials. Students were much better able to demonstrate broader, more detailed, and more integrated understanding of the topics after they had participated in their classes' activities.

Further, teachers were unanimous in their perceptions of the high quality and usefulness of the materials. They believed that the materials were particularly effective in promoting students' learning of the science and social studies concepts presented in the materials, that the format and structure of the materials were engaging for students, and that the materials were of greatest benefit to students whose reading abilities were somewhat low. Because the materials were interesting and engaging for students, teachers also found them to be useful tools for developing reading and literacy skills among their students.

Clearly, using the materials was believed by teachers to be beneficial for their students and data on student learning support this. These data are drawn from a study that employed a non-experimental design. Thus, the specific magnitude of the effects of the program on student learning cannot be estimated with certainty. It is recommended that a study using an experimental design be implemented to reliably confirm the impact of the materials on students and teachers.

The present findings are encouraging. The data obtained in the present study suggest that the National Geographic series *Windows on Literacy* and *Reading Expeditions* are extremely effective for both students and teachers.

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